

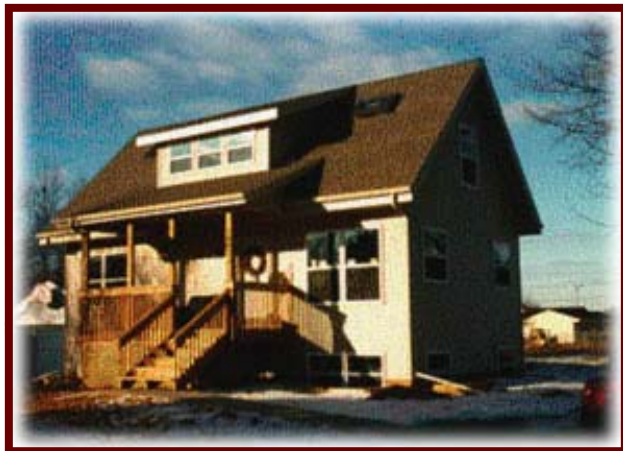


The READ Project (Resource Efficient & Affordable Dwelling) East Lansing, Michigan

Description

The Resource Efficient and Affordable Dwelling (READ) house in East Lansing was constructed in 1995 with the goals of "strengthening the understanding of highly energy-efficient building technology and demonstrating its applicability and economic availability to the community-at-large". The USDOE Energy Efficient Industrialized Housing project (EEIH) supported the READ Project with energy and indoor air quality testing and monitoring to verify the project goals. The East Lansing READ Project House was

affordable to build and costs less to operate than a comparable home built using standard construction methods and materials. This home achieves a five star rating, the highest rating available, on the Michigan Home Energy Rating Scale. The Energy Office offers these home energy ratings which indicate the energy efficiency of a home.



Innovations & Energy Saving Features

- The home is constructed using Structural Insulated Panels (SIPs) -
- SIPs consist of a polystyrene core bonded between two outer layers of strand board.
- SIPs create a sturdier, tighter, super-insulated structure which is faster to build.
- The calculated R-value for the READ home's walls is 26.
- The large size of the panels (up to 8' x 24') reduce labor costs, thermal bridging and air leakage.
- SIP panels were used to construct the basement walls as well as the above-grade walls and ceiling.
- Home is designed to maximize usable space.
- Two high performance windows and/or skylights in major rooms create daylight potential and facilitate ventilation
- Passive solar heating captures the sun's warmth and reduces heating and lighting costs.
- Eave overhangs shade south facing windows and minimize heat gain and reduce cooling load.
- Daylit basement.
- House is well insulated and air tight -
- A small ventilation fan provides adequate ventilation air and control of the interior pressure relative to the outside. This fan provides 60 cfm of air for 12 hours per day (evenings) and exhausts stale air from the home.
- Interior pressure is controlled by supplying outside air to the cold air return duct for the furnace at a rate of 60 cfm.
- The home is heated with a 90+% efficient natural gas condensing furnace with sealed combustion.

Energy Savings

Energy use is low for the 1,800 ft² house. The average monthly electric bill for January 1996 through April 1997 was \$26.70. The annual natural gas cost for March 1996 through April 1997 was \$290. The average natural gas cost for the heating months (December, January, February) was only \$38/month. The base monthly natural gas cost for the home is \$13 (for domestic hot water and cooking).

For more information regarding this particular Energy Project contact:

John Barrie
Associates Architects
(734) 668-4811

LeRoy Harvey
(517) 336-7840

Also, more information can be found on the web at <http://www.fsec.ucf.edu/Bldg/baihp/pubs/REPORTS/read/>

Feel free to contact us if you have any ideas for case studies or other questions :

Michigan Energy Office, Dept. of Labor & Economic Growth
P.O. Box 30221, Lansing, MI 48909
Phone 517/ 241-6228 Fax 517/241-6229
Or Tim Shireman at tashire@michigan.gov

